

CATER AND WALKER,

GROVE STEAM BOILER WORKS,
SOUTHWARK, LONDON, S.E.

MANUFACTURERS OF

CATER AND WALKER'S PATENT BOILER.

LONDON UNIVERSAL EXHIBITION,
1862.

MACHINERY ANNEXE.

1 50 Horse-power.

2 40 „



VIENNA UNIVERSAL EXHIBITION,
1873.

BOILER HOUSE FOR
ENGLAND.

1 50 Horse-power.

ALSO OF

CORNISH, LANCASHIRE, MARINE, LOCOMOTIVE, VERTICAL, AND PORTABLE
BOILERS OF EVERY DESCRIPTION.

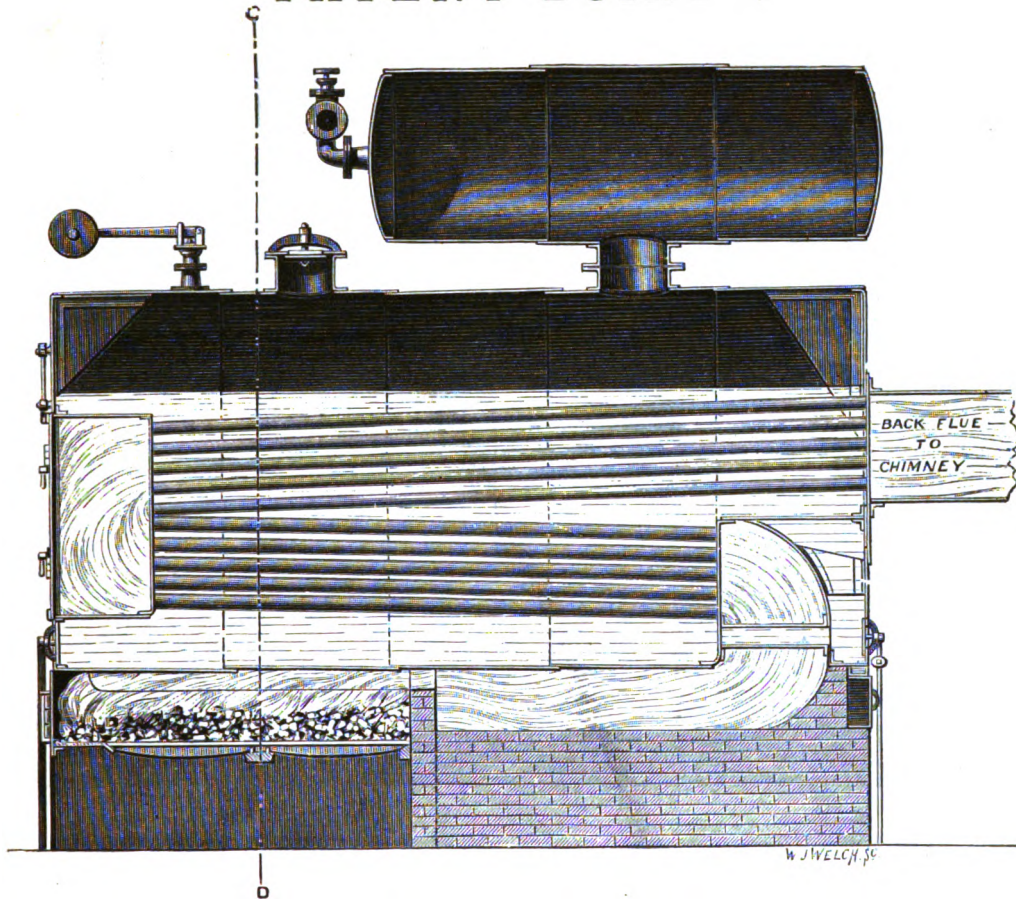
TAR, NAPHTHA, AND OIL STILL; SOAP, SUGAR, SALTPETRE,
AND GLUE PANS; TANKS; GALVANIZING BATHS.

STEAM FITTINGS AND BOILER MOUNTINGS.

Testimonials and all particulars may be obtained on application to the Patentees,

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GROVE STEAM BOILER WORKS, SOUTHWARK, LONDON, S.E.

PATENT BOILER.



SECTION THROUGH A-B

ADVANTAGES.

SAFETY.—Nearly 600 of these Boilers have been in use for many years, and *not the slightest accident, much less an explosion*, has ever happened to one of them.

RAPID GENERATION OF STEAM.—Steam of 60-lb. pressure can be easily raised from cold water in one hour, and can be maintained with

THE GREATEST ECONOMY IN FUEL, evaporating upwards of 10 lb. of water per 1 lb. of coal: this result in many cases having been exceeded. The temperature of the gases as they leave the Boiler is rarely higher than 380° to 400° Fahrenheit. It may be mentioned that one of the first of these Boilers evaporated 9·6 lb. of water per 1 lb. of small coal, since which we have made many important improvements, and recent experiments show still better results.

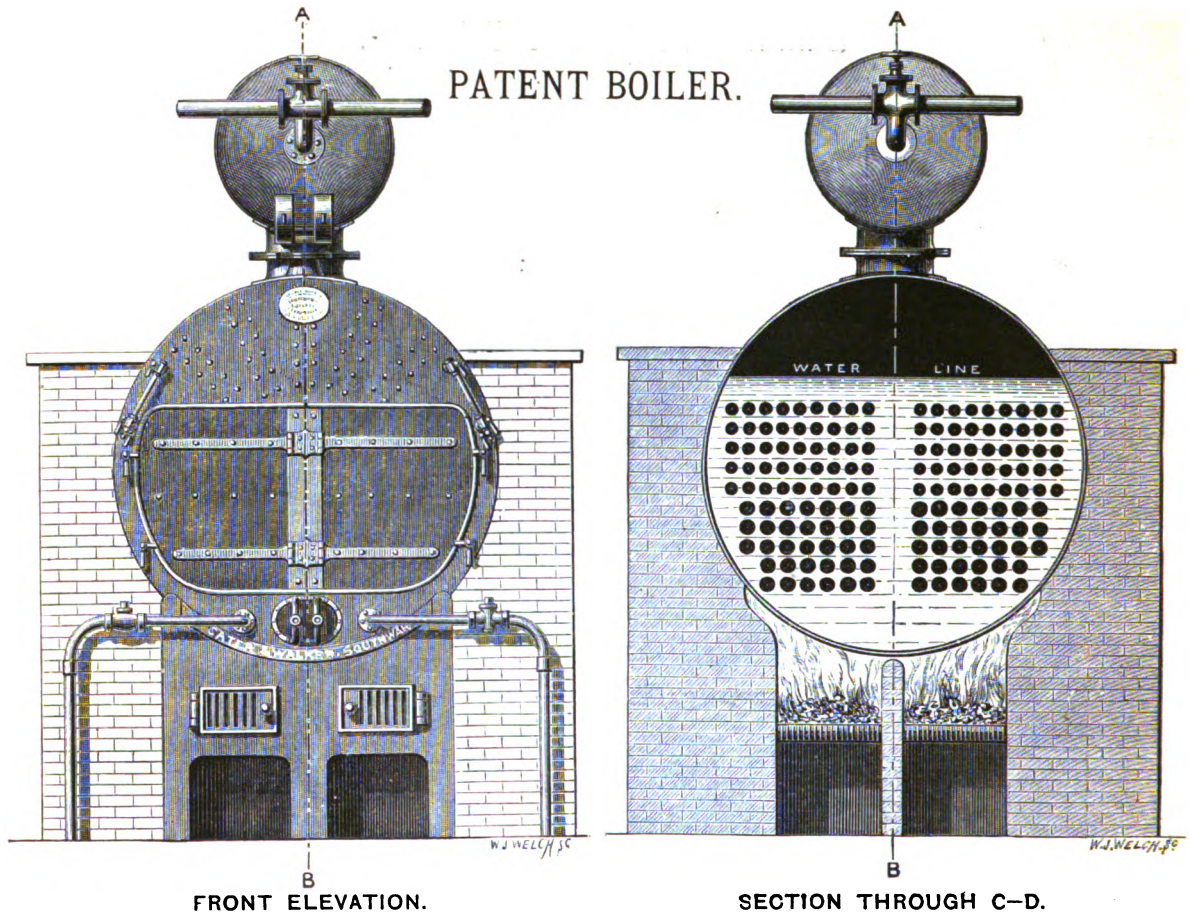
DURABILITY.—Many have been worked upwards of ten years without costing one shilling for repairs, the expansion and contraction of the Boiler while working being equal throughout.—*Vide Testimonials.*

ACCESSIBILITY.—Every part can be readily reached for the purpose of repair (when it eventually becomes necessary), and also for cleaning, the arrangement of parts being such that the whole of the interior can be as easily cleaned as that of any ordinary Boiler.

OCCUPIES VERY LITTLE SPACE.—A Boiler capable of evaporating 100 cubic feet of water per hour occupies a total ground space, including all brickwork and space at back end for smoke box, of 207 square feet, while Lancashire Boilers of the usual standard size capable of doing the same work require about 720 square feet. It consequently follows that the cost of brickwork setting necessary for our Boilers is very much less.

ADAPTED FOR BURNING ANY REFUSE AS FUEL.—Perfect combustion can be obtained under these Boilers, which cannot possibly be the case in the narrow and contracted flue tubes of the ordinary Boiler. To this may be attributed in a great measure the extraordinary economy attained when burning coal, while the area of the grate can be proportioned to suit any refuse fuel such as tan, sawdust, chips, shavings, refuse wood, megass, straw, &c. Indeed, many of these Boilers are at present in use in large saw mills, burning sawdust entirely, coal only being used in the majority of cases for

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ADVANTAGES—continued.

lighting up. Consequently the great saving thus effected has induced most of the principal saw mills proprietors and tanners in London to adopt them, and they have in all cases given complete satisfaction; while for shipment abroad to localities where fuel is bad and scarce they have been extensively used.

AN ENTIRE ABSENCE OF PRIMING GUARANTEED.—An ample proportion of steam space is provided, and priming is entirely prevented by the anti-priming arrangements adopted.

GREAT SAVING IN FREIGHT.—For shipment abroad these Boilers are peculiarly adapted, not only for their economy in fuel, as above mentioned, but the space occupied on board ship being about one-half what is required for ordinary Boilers, the saving in freight more than repays the additional first cost.

We are justified in stating these Boilers to be the *best and cheapest* in the market, as, although the cost is higher in the first instance than that of ordinary Boilers, yet the *cost of fixing* is not only *lower*, but the *great economy in fuel* will in a very short time amply repay the additional outlay; in fact, in many instances *the total first cost has been repaid within twelve months in the saving in fuel*. The cost for maintenance and repairs is considerably less, as there is no unequal expansion and contraction whatever in these Boilers, while with ordinary care they may be worked with even the worst water without fear of any evil results.

Of their safety in working nothing more need be said than that no accident has yet happened to one of them, which cannot be said of any other class of Boiler yet brought out.

During a series of careful experiments made by T. Box, Esq., C.E., author of 'A Practical Treatise on Heat,' &c., &c., on a 40 horse-power Boiler, it was found in *continuous trials* that with Derbyshire coal of inferior quality, 40 cubic feet of water at 70° were evaporated per hour to steam of 60-lb. pressure, the rate of evaporation being 8·4 lb. of water per lb. of coal; the gases leaving the boiler at a temperature of 400°. With Newcastle coal 10 lb. of water were evaporated per 1 lb. of coal, and with Welsh coal 11·8 lb.

The draught of this Boiler, though fair, was far from good, but it was found possible to work the Boiler with the refuse of the saw mill mixed with small coal, up to its full power, *i. e.* a constant evaporation of 40 cubic feet of water per hour to steam at 60 lb.

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PRICE LIST

OF

PATENT MULTITUBULAR BOILERS.

Horse-power.		Diameter. ft. in.		Length. feet.		Price. £	
12	....	4	6	8	....	185	net cash.
16	....	5	0	8	....	245	"
20	....	5	6	10	....	285	"
25	....	5	6	11	....	315	"
30	....	6	0	12	....	360	"
40	....	6	6	13	....	445	"
50	....	7	0	14	....	520	"
60	....	7	0	15	....	580	"
80	....	7	6	16	....	650	"
100	....	8	0	17	....	830	"

DELIVERY IN LONDON.

These Boilers are made on our Patent plan, as per accompanying description ; are of the very best material and workmanship ; and are supplied complete with the following fittings and apparatus, all fitted to the Boilers, and ready to be attached, viz. manhole and mudhole covers and cross bars, cast-iron furnace front and doors, with wrought-iron stays to build into the brickwork, cast-iron dead plate, bearing and furnace bars, back soot door, straight smoke box, 3 feet long, to lead into flue (any extra length or different shape to be extra), fitted with soot door and damper with weight and chain. Also with double safety valve, steam stop valve, with wrought-iron faced flanged necks to attach same to, riveted to Boiler ; two water indicators with spare glasses and indiarubber rings, two blow-off cocks and spanners, feed check valve, and patent steam-pressure gauge.

Longitudinal Steam Chambers of large capacity are provided for all Boilers over 30 Horse-power.

ABOVE PRICES SUBJECT TO ALTERATION AND SPECIAL TERMS.

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ADVANTAGES
OF
CATER AND WALKER'S PATENT BOILER.

SAFETY.

RAPID GENERATION OF STEAM.

GREATEST ECONOMY IN FUEL YET ATTAINED.

DURABILITY.

ACCESSIBILITY.

OCCUPIES LITTLE SPACE.

COST OF FIXING SMALL.

ADAPTED ESPECIALLY FOR BURNING REFUSE FUEL.

ENTIRE ABSENCE OF PRIMING.

NEARLY 600 IN USE IN EVERY PART OF THE WORLD, GIVING
THE GREATEST SATISFACTION.

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ARE ALSO MANUFACTURERS OF EVERY DESCRIPTION OF

CORNISH AND LANCASHIRE BOILERS,

MARINE BOILERS,

STEAM LAUNCH BOILERS OF SPECIAL DESIGN,

PATENT VERTICAL BOILERS,

VERTICAL BOILERS, WITH FIELD, VERTICAL, OR
CROSS TUBES,

LOCOMOTIVE AND PORTABLE BOILERS.

TAR, NAPHTHA, AND OIL STILL.

SOAP, SUGAR, SALTPETRE, AND GLUE PANS.

TANKS OF EVERY DESCRIPTION.

GALVANIZING BATHS.

&c., &c.

HOT-WATER BOILERS OF SPECIAL DESIGN,

AS SUPPLIED TO

THE CRYSTAL PALACE, SYDENHAM; CITY PRISON, HOLLOWAY, &c. &c.

STEAM FITTINGS AND BOILER MOUNTINGS.

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